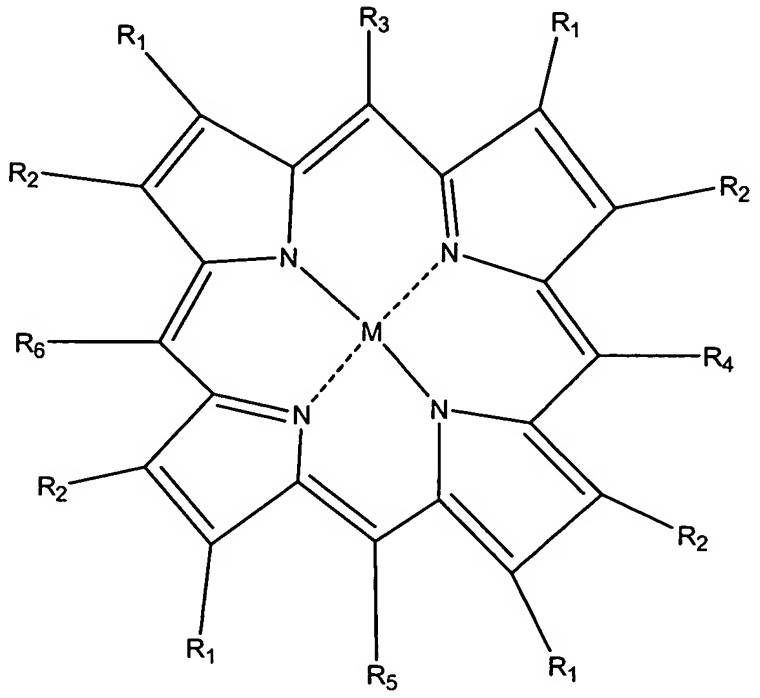
[0091] We claim:

1. A method for inhibiting or preventing a viral infection in a patient, said method comprising administering to the patient an effective amount of a compound comprising a porphyrin macrocycle, and further comprising one or more carboranyl groups that are linked to the porphyrin macrocycle by carbon-carbon bonding.

2. A method as recited in Claim 1, wherein the patient is a human.

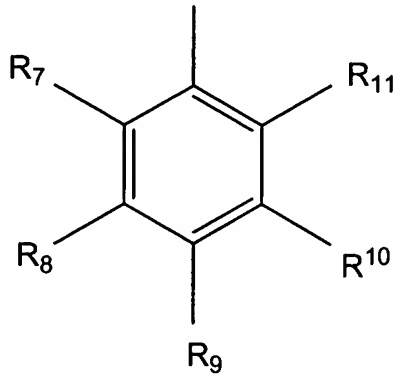
3. A method as recited in Claim 2, wherein the method inhibits or prevents infection by human immunodeficiency virus.

4. A method as recited in Claim 1, wherein the compound has structure I:



I

wherein M is 2H or a metal ion; R1 and R2 are each independently hydrogen, C_1 to C_4 alkyl or hydroxyalkyl; and R3, R4, R5, and R6 are each independently hydrogen, phenyl, or substituted phenyl having structure II:



II

wherein R7, R8, R9, R10, and R11 are independently hydrogen or a carboranyl group, wherein such a carboranyl group is linked to the phenyl group by a carbon-carbon bond; and wherein one or two of R7, R8, R9, R10, and R11 are hydrogen, halide, hydroxide, alkoxide, sulfonate, or a substituted or unsubstituted alkyl or aryl; or such a carboranyl group; and

wherein at least one of R3, R4, R5, and R6 is a substituted phenyl having structure II and having at least one such a carboranyl group.

5. A method as recited in Claim 4, wherein at least two of R3, R4, R5, and R6 are substituted phenyls having structure II and each having at least one such a carboranyl group.

6. A method as recited in Claim 4, wherein each of R3, R4, R5, and R6 is a substituted phenyl having structure II and each having at least one such a carboranyl group.

7. A method as recited in Claim 4, wherein at least two of R3, R4, R5, and R6 are substituted phenyls having structure II and each having at least one such a carboranyl group.

8. A method as recited in Claim 1, additionally comprising the step of exposing tissue of the patient to light having a wavelength, intensity, and duration sufficient to significantly enhance the compound's inhibition or prevention of viral infection.

9. A method as recited in Claim 1, wherein the compound is selected from the group consisting of Compounds **4**, **6**, **10**, **12**, **16**, **18**, **22**, **24**, **31**, and **33**.

10. A method as recited in Claim 1, wherein the compound is Compound **16**.

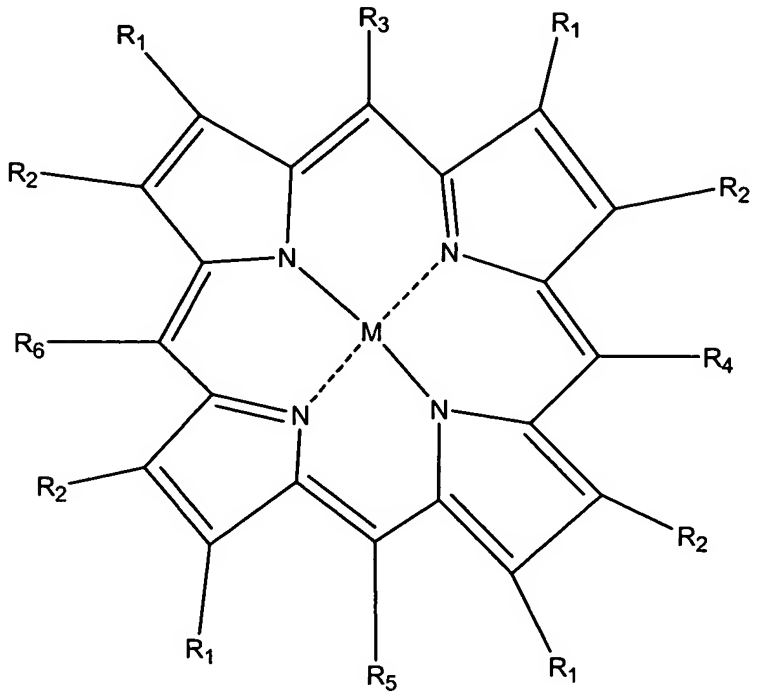
11. A method as recited in Claim 1, wherein the compound is Compound **31**.

12. A method as recited in Claim 1, wherein the compound is Compound **33**.

13. A method for killing or inhibiting viruses in or on a material, said method comprising treating the material with an effective amount of a compound comprising a porphyrin macrocycle, and further comprising one or more carboranyl groups that are linked to the porphyrin macrocycle by carbon-carbon bonding.

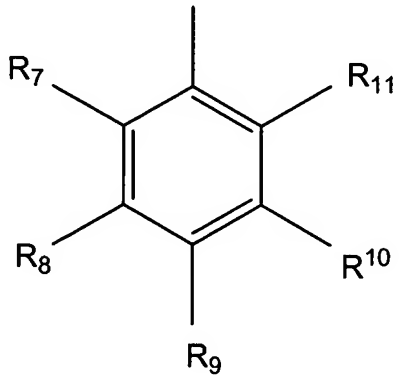
14. A method as recited in Claim 13, wherein the method kills or inhibits the human immunodeficiency virus.

15. A method as recited in Claim 13, wherein the compound has structure I:



I

wherein M is 2H or a metal ion; R1 and R2 are each independently hydrogen, C_1 to C_4 alkyl or hydroxyalkyl; and R3, R4, R5, and R6 are each independently hydrogen, phenyl, or substituted phenyl having structure II:



II

wherein R7, R8, R9, R10, and R11 are independently hydrogen or a carboranyl group, wherein such a carboranyl group is linked to the phenyl group by a carbon-carbon bond; and wherein one or two of R7, R8, R9, R10, and R11 are hydrogen, halide, hydroxide, alkoxide, sulfonate, or a substituted or unsubstituted alkyl or aryl; or such a carboranyl group; and

wherein at least one of R3, R4, R5, and R6 is a substituted phenyl having structure II and having at least one such a carboranyl group.

16. A method as recited in Claim 15, wherein at least two of R3, R4, R5, and R6 are substituted phenyls having structure II and each having at least one such a carboranyl group.

17. A method as recited in Claim 15, wherein each of R3, R4, R5, and R6 is a substituted phenyl having structure II and each having at least one such a carboranyl group.

18. A method as recited in Claim 15, wherein at least two of R3, R4, R5, and R6 are substituted phenyls having structure II and each having at least one such a carboranyl group.

19. A method as recited in Claim 13, additionally comprising the step of exposing the material to light having a wavelength, intensity, and duration sufficient to significantly enhance the compound's killing or inhibition of viruses.

20. A method as recited in Claim 13, wherein the compound is selected from the group consisting of Compounds **4**, **6**, **10**, **12**, **16**, **18**, **22**, **24**, **31**, and **33**.

21. A method as recited in Claim 13, wherein the compound is Compound **16**.

22. A method as recited in Claim 13, wherein the compound is Compound **31**.

23. A method as recited in Claim 13, wherein the compound is Compound **33**.